

DRAWINGS ATTACHED.

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COMPLETE SPECIFICATION.

Improvements in Electrical Circuits including Socket Outlets.

I, DARIO MORANDUZZO, an Italian Citizen of via Aretina 161, Florence, Italy, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The present invention relates to a method of providing, in an electrical circuit, a socket outlet.

The method according to this invention has particular application in the manufacture of the type of electrical line which may be used, for example, as a Christmas tree light bulb circuit.

According to the present invention therefore, a method of providing in an electrical circuit a socket outlet including two contact parts, comprises at least the steps of securing to an electrical conductor each of two mechanically interconnected contact parts together forming a contact member; removing the mechanical connection between the contact parts; removing the portion of conductor electrically connecting the two contact parts, and securing the contact parts in their respective positions.

Preferably the contact member is generally U-shaped, the arms of the U each forming one of the contact parts and the base or cross member of the U-shaped member forming the mechanical link between the contact parts, and in this case, the free end portions of the arms of the U may be extended outwardly for attachment to the conductor.

These outwardly cranked free ends of the arms of the U may be trough-shaped in order to be bent around or crimped about the conductor.

When the conductor is electrically insulated, it is preferably bared of such insulation prior to the securing of the contact

member thereto in order to obtain a good connection.

Usually, the conductor to which the contact member is secured is one of a pair of conductors normally retained in spaced parallelism by a sheath of insulating material.

Very desirably, the contact parts may be encased in an electrical insulating material to form an electric light bulb receiving socket, the electrical insulating material preferably being a plastics material.

In order that the present invention may be more readily understood one embodiment thereof will now be described by way of example and with reference to the accompanying drawings in which:—

Figure 1 is an elevational view of a bulb connecting circuit constructed in accordance with the invention;

Figure 2 is a partial transverse sectional view of one of the sockets shown in Figure 1, the bulb shown removed from the socket;

Figure 3 is a top plan view of one of the sockets shown in Figure 1, but with the light bulb removed;

Figures 4 to 7 are partial plan views of a portion of the connecting line showing the steps of forming the socket thereon in accordance with the method of the invention; and

Figure 8 is a perspective view of a contact member employed in the method of the invention for forming the socket contacts.

Referring to the drawings there is shown a flexible bifilar strip generally designated 1 which includes two conductor cable branches 2 and 3 which are connected at one end to respective terminals of a plug member 6 and are joined together at their opposite end and covered by means of a

[Price 4s. 6d.]

shield member 5 which is secured to the strip 1.

A plurality of socket body members 4 are provided, and these may be formed by stamp forming the sockets bodies from a thermoplastic material over the strip 1 at selected locations along its length. Any suitable pressure stamping machine may be employed for the purpose. The thermoplastic material is also electrically insulating.

The cable 2 is severed to form bared terminals 9, 9 which are each connected to a lamp socket contact part 8. For this purpose each socket contact part 8 includes an outwardly cranked cylindrical portion 8a which fits over the associated terminal 9 and is secured thereto by, for example, press-fitting or crimping. The portions 8a extend at substantially right angles to the remainder of each contact part, and are connected to the cables in a simple manner as will hereinafter be explained. Each body 4 comprises an extension 4a which is at right angles to a socket base 4b. The socket extension 4a is provided with a recess or cavity 10 for receiving a base portion 11 of a bulb 12. The bulb 12 is of a type which includes exposed terminals 13, 13 and is of a shape such that it may be press-fitted within the socket 10. The contacts 8, 8 are embedded in opposite sides of the socket 4, and when the bulb 12 is properly oriented with its base 11 in the socket, the terminal 13, 13 are connected to respective contacts 8, 8.

A first socket body member 4 is advantageously formed along a length of the strip 1 at a fixed distance from the plug 6 which is established in accordance with the particular light set which is to be employed. The socket bodies 4 are formed in a rigid manner at the fixed location indicated along the strip 1, and the construction is such that the contact terminals will be anchored within the plastics, there being little possibility of their becoming loosened. By stamp forming or pressure-forming the plastics material socket a permanent insulation will be applied around the severed portions of the connecting cable and the contacts will be protected against penetration by moisture and may be used outdoors.

In a preferred method of the invention, a U-shaped contact member (Figure 8) generally designated 8¹ is advantageously used for forming the two contact parts 8, 8. This member 8¹ includes laterally projecting trough-shaped elements 8a, 8a on each side of the top, and a central web member 8b formed between the lower ends of the contact parts 8, 8 and mechanically interconnecting the contact parts. The trough-shaped members 8a form channels for permitting easy orientation of the contacts to the wires.

As indicated in Figures 4 to 7, a length of the cable strip 1 is first locked into a locking jig having clamping means schematically indicated 18. Thereafter a length λ of the cable 2 is bared by removing the covering insulation and a portion of the strip webbing of the strip 1 is also removed. The contact member 8¹ is then inserted so that the trough-shaped portions 8a, 8a are aligned over the cable length λ and the sides of the trough-shaped portions are bent over the cable to provide a secure electrical connection which may also be soldered.

As is indicated by Figure 6, the mechanically interconnecting web portion 8b is removed and the outer ends of the contact parts 8, 8 are bent outwardly, as indicated at 19. As indicated in Figure 7, the cable lying between the contact parts 8, 8 is then severed. Thereafter, the plastics socket body 4 is formed directly over the bifilar strip 1 in a manner such that the socket portion 4a projects outwardly from the cylindrical base portion 4b. By stamp forming the socket body member 4 in situ, the insulation around the exposed length of wire λ will be maintained and protected from any weather effects.

The socket extension is advantageously made with a non-circular recess to permit the plug-in connection of a bulb of a type having exposed contacts which will be aligned with the contact parts formed in the plastic material.

It will be appreciated that in the preferred method of the invention it is a simple matter to first connect the two current lines to a terminal plug for insertion into a house current supply. The lines may easily be joined together at their opposite ends to form a series circuit. Thereafter, it is a simple matter to remove the insulation from one of the connecting cables at selected distances along its length. A stamped conductive contact member of U-shaped configuration is then readily positioned so that laterally projecting lugs on each side are electrically and mechanically connected to the bared cable. The central web portion of the U-shaped member is then conveniently severed, leaving two spaced metal contact parts oriented in spaced relationship to each other which form contacts after the bared length of the cable therebetween is also severed. Thereafter, a plastics socket member may be formed directly over the spaced contacts to complete the electrical line formation for one socket.

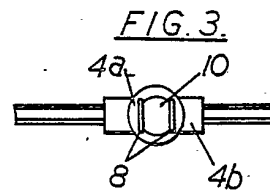
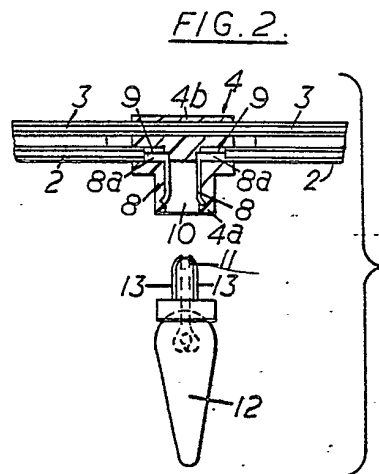
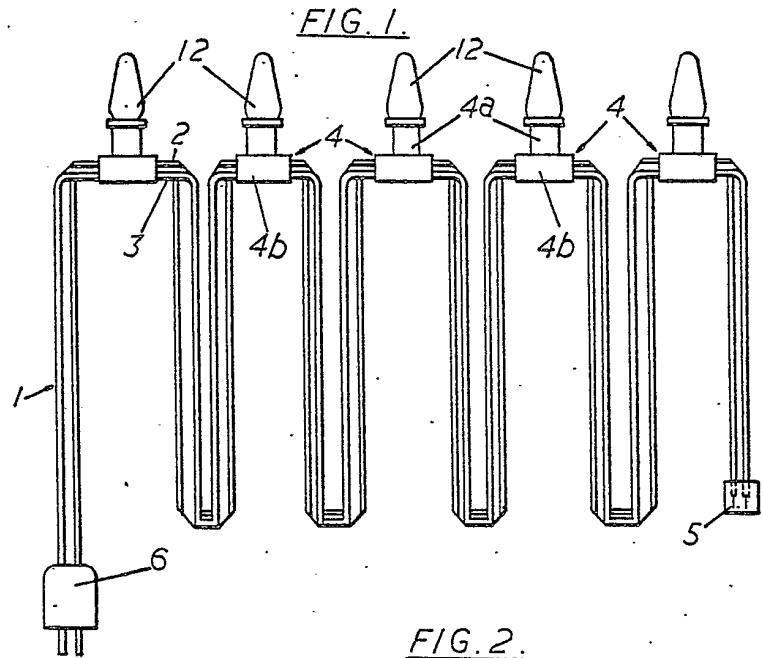
Thus an electrical circuit including a series of socket outlets may be easily and relatively cheaply manufactured.

WHAT I CLAIM IS:—

1. A method of providing in an electrical circuit a socket outlet including two contact parts the method comprising at least

- the steps of securing to an electrical conductor each of two mechanically interconnected contact parts together forming a contact member; removing the mechanical connection between the contact parts; removing the portion of conductor electrically connecting the two contact parts, and securing the contact parts in their respective positions.
2. A method according to claim 1, wherein said contact member is generally U-shaped, the arms of the U each forming one of the contact parts and the base or cross member of the U forming the mechanical connection between the contact parts.
3. A method according to claim 2 wherein the free end portions of the arms of the U-shaped member are extended outwardly for attachment to the conductor.
4. A method according to claim 3, wherein the said outwardly extended free ends of the arms of the U-shaped member are trough shaped and are adapted to be bent around or crimped about the conductor.
5. A method according to any one of the preceding claims wherein, when the conductor is electrically insulated, said conductor is bared of such insulation prior to the securing of the contact parts thereto.
6. A method according to claim 5 wherein the conductor to which the contact parts are secured is one of a pair of conductors normally retained in spaced parallelism by a sheath of insulating material.
7. A method according to any one of the preceding claims wherein the contact parts are secured in their respective positions by partially encasing said contacts part in an electrically insulating material to form an electric light bulb receiving socket.
8. A method according to claim 7 wherein said insulating material is a plastics material.
9. A method according to claim 7 or 8 wherein the bulb receiving socket formed by the insulating material is not circular in transverse cross section.
10. A method of forming a socket outlet on a cable substantially as hereinbefore described and with reference to the accompanying drawings.
11. A socket made by a method of any one of the preceding claims.
12. A socket substantially as hereinbefore described with reference to and as shown in the accompanying drawings.
13. An electrical connecting line for bulbs comprising two conductors insulated from one another, one of said conductors having a plurality of spaced-apart sockets formed thereon by the method of any one of claims 1 to 10.

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COMPLETE SPECIFICATION

2 SHEETS

This drawing is a reproduction of
the Original on a reduced scale

Sheets 1 & 2

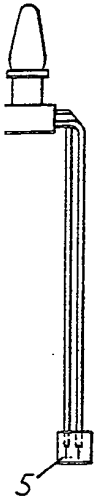


FIG. 4.

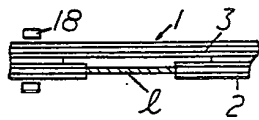


FIG. 6.

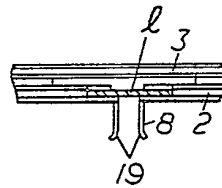


FIG. 5.

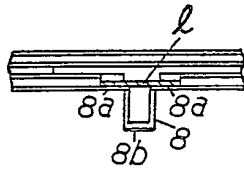


FIG. 7.

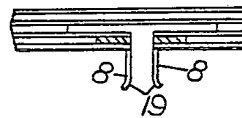


FIG. 8.

